CHELNOKOV, A.M.

Planning and accounting units, and work and cost accounting in shipbuilding. Trudy NTO sud.prom. 8 no.2:35-44 '59.
(MIRA 13:5)
(Shipbuilding--Accounting)

CHELNOKOV, A.M.; KUROVSKIY, V.N.

Planning the execution of shipbuilding orders at a shipyard
with the aid of electronic computers. Sudostroenie no.8:
53-57 Ag '65.
(MIRA 18:9)

CHELNOKOV, A. S.

CHELNOKOV, A. S. -- "Morphological, Biological, and Technological As-
pects and Basic Procedures of Cultivating 'golozernyy furkatnyy'
Barley in the Right-Bank Region of Saratov Oblast." Min Higher
Education USSR. Saratov Agricultural Inst. Saratov, 1955.
(Dissertation for the Degree of Candidate in Agricultural Sciences)

SO: Knizhnaya Letopis', No 1, 1956

CHELNOKOV, G. N.

USSR/Chemistry - Synthetic Fibers, Plastics   1 Feb 52

"The Significance of Exchange Reactions in the Process of Polycondensation,"
V. V. Korshak, G. N. Chelnokov, G. I. Distler, Inst of Org Chem, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXXII, No 4, pp 589-591

Studied products of polycondensation of sebacic acid with monoethanolamine
(I) and N,N -di (betahydroxyethl-) sebacinamide (II). Electron diffraction
pictures and other data showed that products from I and II were identical,
proving that exchange reactions must have occurred in the polycondensation.
Drew up a scheme of p olycondensation equilibria for the reaction between
monoethanolamine and sebacic acid.

PA 213T16

BARKOV, N., inzh. (Khar'kov); POLTAVSKIY, G. (Cherkassy); CHELNOKOV, I.B.;
    GLADKIKH, I.A.; NEGRIYENKO, B.A.; BARANNIKOV, M.

    Readers' letters. Bezop.truda v prom. 7 no.3:34 Mr '63.
                                                          (MIRA 16:3)
    1. Komandiry gornospasatel'nykh vzvodov, Donetskaya obl. (for
    Chelnokov, Gladkikh, Negriyenko). 2. Shakhta "Mariya-Glubokaya",
    Luganskaya obl. (for Barannikov).
                            (Industrial safety)

CHELNOKOV, I. I.

"Establishing Parameters Governing Vibration Dampers in Freight Cars." Dr Tech Sci, Leningrad Inst of Railroad Transport Engineers imeni V. N. Obraztsov, Min Railways, Leningrad, 1954. (KL, No 2, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

CHELNOKOV, I. I.

CHELNOKOV, I. I. --"Determination of Parameters of Shock Ab orbers for
Freight Cars." *(Dissertations for Degrees in Science and Engineering
Defended at USSR Higher Educational Institutions) Min of Transport Means
USSR, Leningrad Order of Lenin Inst of Engineers of Railway Transport imeni
Academician V. N. Obraztsov, Leningrad, 1955

SO: Knizhnaya Letopis', No. 25, 18 Jun 55

* For Degree of Doctor of Technical Sciences

CHELNOKOV, I.I.; IVANOV, A.I.

[Maintenance and repair of irrigation canal systems] Soderzhanie i remont kanalov orositel'nykh sistem. Tashkent, Gos. izd-vo Uzbek SSR, 1955. 109 p.   (MIRA 10:2)
         (Irrigation canals and flumes)

CHELNOKOV, Ivan Ivanovich

CHELNOKOV, Ivan Ivanovich - Academic degree of Doctor of Technical Sci based on his
defense, 15 June 1955, in the Council of the Leningrad Order of Lenin Inst of
Engineers of Railroad Transport imeni Obraztsov, of his dissertation entitled:
"Determination of parameters of the vibration dampers in freight cars."   for the
Academic Degree of Doctor of Sciences

SO: Byulleten' Ministerstva Vysshego Obrazovaniya SSSR, List No. 3, 4 February 1956.
Decisions of the Higher Certification Commission Concerning Academic Degrees
and Titles.

JPRS/NY   554

SHADUR, Leonid Abramovich, doktor tekhn. nauk, prof.; CHELNOKOV, Ivan
     Ivanovich, doktor tekhn. nauk, prof.; NIKOL'SKIY, Lev
     Nikolayevich, doktor tekhn. nauk, prof.; KAZANSKIY, Georgiy
     Alekseyevich, kand. tekhn.nauk; KOGAN, Liber Ayzikovich,
     kand. tekhn. nauk; DEVYATKOV, Vladimir Fedorovich, kand.
     tekhn. nauk; CHIRKIN, Viktor Vasil'yevich, kand. tekhn. nauk;
     MORDVINKIN, N.A., inzh., retsenzent; BRAYLOVSKIY, N.G., red.;
     MEDVEDEVA, M.A., tekhn. red.

     [Designs of railroad cars] Konstruktsii vagonov. Moskva, Vses.
     izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia,
     1962. 415 p.   (MIRA 15:4)
          (Railroads—Cars—Design and construction)

CHELNOKOV, I.I., doktor tekhn.nauk, prof.; KAL'NITSKIY, L.A., kand. tekhn.nauk, dotsent

Forced vibrations of the system "wheel pair load on a spring assembly with bilinear elastic characteristics." Sbor.trud. LIIZHT no.183:55-68 '62.   (MIRA 16:2)
                        (Car springs—Vibration)

CHELNOKOV, I.I., doktor tekhn. nauk, prof.; VISHNYAKOV, B.I., inzh.;
GARBUZOV, V.M., inzh.; ESTLING, A.A., kand, tekhn.nauk;
DOLMATOV, A.A., kand. tekhn. nauk, retsensent; SARANTSEV,
Yu.S., inzh., red.; USENKO, L.A., tekhn. red.

[Vibration dampers for railroad cars] Gasiteli kolebanii va-
gonov. [By] I.I.Chelnokov i dr. Moskva, Transzheldorizdat,
1963. 175 p.   (MIRA 16:5)
   (Railroads—Cars—Vibration)   (Damping (Mechanics))

CHELNOKOV, I.I., doktor tekhn.nauk, prof.; ESTLING, A.A., insh.

Selecting the design diagrams for determining the frequency
of the natural vibrations of railroad cars. Sbor.trud.LIIZHT
no.183:3-28 '62.   (MIRA 16:2)
          (Railroads—Cars—Vibration)   (Car springs—Testing)

CHELNOKOV, I.I., dr. tekhn. nauk, prof.; ESTLING, A.A., kand. tekhn. nauk

Selecting the necessary number of vibration dampers and their
distribution on the truck of passenger cars. Sbor. trud.
LIIZHT no.215:3-19 '64.   (MIRA 17:12)

CHELNOKOV, I.I., dr. tekhn. nauk, prof.; VISHNYAKOV, B.I., kand. tekhn. nauk; VARAVA, V.I., kand. tekhn. nauk; GARBUZOV, V.M., inzh.; SAPRYKIN, L.I., inzh.

Test bench for the vibration dampers of railroad vehicles.
Sbor. trud. LIIZHT no.215:160-170 '64.   (MIRA 17.12)

CHELNOKOV, I.I., dr. tekhn. nauk, prof.

Determining the moments of inertia and the height of the center
of gravity of the car body. Sbor. trud. LIIZHT no.215:20-29 '64.
(MIRA 17:12)

AUTHORS: Lazukov, N. A., Chelnokov, I. Ye.,   SOV/89-5-1-4/28
                Ivanov, V. P.

TITLE: Investigation at the Stand of the Experimental Nuclear Reactor
                VVR-S (Issledovaniye na stende eksperimental'nogo yadernogo
                reaktora VVR-S)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 1, pp. 44-51 (USSR)

ABSTRACT: The present investigations of the VVR-S reactor were carried out
                for the purpose of ascertaining the neutron-physical parameters
                which are of importance in connection with the starting and
                operation of the reactor. The experiments were carried out at
                zero power and permit the following conclusions to be drawn:
                The following are the parameters of the core of the reactor for
                starting and operation:
                a) The critical mass is attained by means of 25 fuel elements
                (3,2 kg U^{235}). With a charge of 32 fuel caskets (4,1 kg U^{235})
                the excess reactivity Δk in the reactor at the beginning of
                operation amounts to $\sim 0,05$. This is sufficient for xenon com-
                pensation, for the temperature effect, and for the modification
Card 1/3   of reactivity which depends on the change of the quality of the

Investigation at the Stand of the Experimental
Nuclear Reactor VVR-S.

SOV/89-5-1-4/28

reflector during experiments. The maximum initial charge at which
excess reactivity is fully compensated by the bringing in of all
regulating rods is that of 38 fuel caskets (4,9 kg U^{235}).
b) The compensating property Δk of all regulating rods is about
0,07 and that of the safety rods is 0,06. The safety rods respond
within about 0,3 sec.
c) The temperature coefficient of the reactivity of the reactor
is negative, and within the temperature range of 30-40° C it
amounts to $\frac{\Delta k}{\Delta t} \approx -1.10^{-4}$/° C.
d) The "displacers" (vytesnitel') located on the periphery of the
core (20 of them) reduce reactivity by about 0,01. The reduction
of reactivity, if in the "displacers" (vytesnitel') materials are
subjected to irradiation (production of radioactive isotopes), may
attain a value of 0,01 and more.
e) From a power output of 0,3 kW onward, the automatic control
device of the reactor operates reliably. Automatization can be
attained also already from 5 W onwards providing that ionization

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Investigation at the Stand of the Experimental   SOV/89-5-1-4/28
Nuclear Reactor VVR-S

        chambers are used in the core as checking devices. There are
        8 figures, 2 tables, and 3 references, 2 of which are Soviet.

SUBMITTED: February 13, 1958

        1. Reactors--Analysis   2. Reactors--Starting   3. Reactors
        --Operation

Card 3/3

21(7)
AUTHORS: Flerov, N. N., Berezin, A. A.,   SOV/89-5-6-14/25
Chelnokov, I. Ye.

TITLE: The Fission Cross Section of U^{238} for Neutrons With an Energy
of 14.6 MeV (Secheniye deleniya U^{238} neytronami s energiyey
14.6 Mev)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 6, pp 657-657   (USSR)

ABSTRACT: For the measurements carried out in 1952 a thin-walled
ionization chamber was used. A platinum foil was fastened
to one of its electrodes, upon which a natural layer of
uranium was applied electrolytically. This uranium layer
had a diameter of 7.2 cm and a surface density of 0.5 mg/cm^2.
The quantity of uranium was measured by weighing and by
counting α-activity. The results obtained agree with an
accuracy of $\pm 1 \%$. The ionization chamber was placed at a
certain distance from a tritium target, which was located
in an ion-acceleration tube. The deuterons were accelerated
up to 140 keV . The construction of the α-counter and the
method of absolute measurement of the neutron flux is
described more in detail by reference 2 .
Card 1/2   After carrying out a number of corrections which take the

The Fission Cross Section of U^{238} for Neutrons With   SOV/89-5-6-14/25
an Energy of 14.6 MeV

background, the absorption of the fission fragments in the sublayer, and the inelastic scattering on the walls of the tritium target and on the walls of the ionization chamber into account, the following expression was found for E_n = 14.6 MeV :

$$\sigma_f = (1.13 \pm 0.05) \text{ b}$$

These values agree well with the data obtained by R. K. Smith and R. L. Henkel (Ref 3). There are 1 figure and 3 references, 2 of which are Soviet.

SUBMITTED: August 7, 1958

Card 2/2

. 21(7)

AUTHORS: Berezin, A. A., Stolyarov, G. A.,   SOV/89-5-6-16/25
                Nikol'skiy, Yu. V., Chelnokov, I. Ye.

TITLE: Fission Cross Section of U^{235} and Th^{232} for Neutrons With an
                Energy of 14.6 MeV (Secheniye deleniya U^{235} i Th^{232} neytronami
                s energiyey 14.6 MeV)

ABSTRACT: The fission cross section of U^{235} was measured from the ratio

$$\frac{\sigma_f(U^{235})}{\sigma_f(U^{238})}$$

                for neutrons of equal energy. The ionization chambers, which
                contained U^{235} and U^{238}, were, one after another, subjected
                to irradiation by neutrons (d-t-reaction; ion acceleration
                tube. E_d = 140 keV. Angle between ionization chamber and
                deuteron beam 0^0). Both chambers were connected with the same
                linear amplifier with constant impulse threshold value. The
                ionization chambers had thin walls. The external cylindrical
Card 1/3   electrode (diameter 2.5 cm) consisted of a platinum foil.

Fission Cross Section of U^{235} and Th^{232} for Neutrons   SOV/89-5-6-16/25
With an Energy of 14.6 MeV

On to the inner surface of the foil an uranium layer was
electrolytically applied (the layer in the first chamber
was of natural uranium, that in the second chamber contained
97 % enriched U^{235}). Length of the layer: 6.5 cm; surface
density: natural uranium $\sim$ 2 mg/cm^2, U^{235} $\sim$ 0.5 mg/cm^2.

The chambers were housed in a graphite prism (60.60.70 cm^3).
There was also a Po-Be-neutron source which was surrounded
by 4 cm of paraffin. In connection with other measurements,
a tritium target (ion accelerator tube) was used as a neutron
source. As monitor, a proportionality counter was used, which
counted the α-particles of the reaction T(d,n)He^4. In order
to suppress the scattered neutrons, the chamber was surrounded
by a Cd-sheet of 1 mm thickness and by boron carbide of 10 cm
thickness.
After carrying out some minor corrections

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$$\frac{\sigma_f(U^{235})}{\sigma_f(U^{238})} = 2.03 \pm 0.09$$

Fission Cross Section of U^{235} and Th^{232} for Neutrons   SOV/89-5-6-16/25
With an Energy of 14.6 MeV

was obtained.
By using $\sigma_f(U^{238})$ for 14.6 MeV neutrons (according to
reference 2), $\sigma_f(U^{235}) = 2.30 \pm 0.15$ b was obtained.
The fission cross section for Th^{232} was measured by means of
an ionization chamber (for the arrangement of the apparatus
see reference 2). The thorium layer precipitated on platinum
(Ref 1) had a surface density of ~ 0.5 mg/cm^2 and contained
16.6 $\pm$ 0.5 mg Th. $\sigma_f(Th^{232})$ was measured as amounting to
0.37 $\pm$ 0.02 b. This result agrees well with the data of
reference 3.
The results were discussed with N. N. Flerov. There are
3 references, 2 of which are Soviet.

SUBMITTED: August 7, 1958

Card 3/3

BIRULEV, M.S.; LANG, I.; LINEV, A.F.; SUKHOV, A.M.; CHELNOKOV, L.P.

Printing time-amplitude pulse analyzer without storage of information. Prib. i tekh. eksp. 8 no.5:90-97 S-O '63.

(MIRA 16:12)

ACC NR: AR7004322   SOURCE CODE: UR/0271/66/000/011/B034/B034

AUTHOR: Chelnokov, L. P.; Imayev, E. G.

TITLE: Telegraph apparatus used for extracting information from multichannel analyzers and from multidimensional storageless systems

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl. tekhn., Abs. 11B263

REF SOURCE: Tr. 6-y Nauchno-tekhn. konferentsii po yadern. radioelektron. T. 3. Ch. 2. M., Atomizdat, 1965, 18-28

TOPIC TAGS: telegraph equipment, data processing, pulse height analyzer, multichannel analyzer, computer output unit, computer circuit /TAI-1 analyzer, AI-100-1 analyzer

ABSTRACT: A method is considered of using the telegraph apparatus as an output device (with tabulated readout or perforated tape). A standard telegraph apparatus can receive data from multichannel analyzers and other nuclear recording devices and can ensure further data processing by a digital computer. As the telegraph printing rate is only 7 characters per second, the apparatus is suitable for recording only slow events. Two circuits have been developed suitable for the TAI-1 multidimensional analyzer and the AI-100-1 analyzer. One of the circuits is designed with miniature relays and transistors; another has no contacts and uses transistors and semiconductor diodes. The second circuit proved to be more reliable and convenient. It uses P-13, P-14, A-15, and P-16 transistors, D1 Ge diodes, and D101 Si diodes. Experiments have shown that the circuit operates reliably with a supply voltage variation of -4 to -12 v and a spread of resistors and capacitors by ±20%, at temperatures +10 to +35C. Six figures. Bib. of 4 titles. V. L. [Transl'n of abtr.]

Card 1/1   SUB CODE: 09,18   UDC: 681.142.62

L 33757-66   EWT(m)

ACC NR: AP6025838   SOURCE CODE: UR/0089/66/020/003/0230/0232

AUTHOR: Zager, B. A.; Miller, M. B.; Mikheyev, V. L.; Polikanov, S. M.; Sukhov, A. M.; Flerov, G. N.; Chelnokov, L. P.

ORG: none

TITLE: Properties of the 102 sup 254 isotope

SOURCE: Atomnaya energiya, v. 20, no. 3, 1966, 230-232

TOPIC TAGS: isotope, cyclotron, half life, particle physics

ABSTRACT: Isotope 102^{254} has been produced on the external beam of the 150 centimeter OIYaI cyclotron following the $Am^{243}(N^{15}, 4n)102^{254}$ reaction. It was established by recording the α-decay of the primary and daughter nuclei that the half-life of this isotope is within the 20—50 sec interval, while the energy of the emitted α particles is equal to 8.10 ± 0.05 MeV. The new results are in disagreement with the data found in literature ($T_{1/2} = 3$ sec, and $E_{\alpha} = 8.3$ MeV). The authors thank the collective that worked on the accelerator: A. F. Linev, I. A. Shelayev, and V. S. Alfonov for checking the efficiency of the cyclotron; K. A. Gavrilov for preparing the target, which was stable under very intense beams; and V. A. Chugreyev for carrying out the construction work. They also thank Doctor of Physicomathematical Sciences I. G. Gverdtsiteli, who provided the isotope N^{15}; V. I. Kuznetsov, A. G. Smirnov-Averin, and A. G. Koslov, who guaranteed the receipt of Am^{243} for the target. Finally, they thank A. G. Belov, V. I. Ilyushchenko and V. I. Nikolayev for help in conducting the experiments. Orig. art. has: 2 figures. [JPRS: 36,139]

SUB CODE: 18, 20 / SUBM DATE: 15Dec65 / ORIG REF: 006 /OTH REF: 005
UDC: 546.799.92

CHELNOKOV, M.

Conference of interdepartmental control inspectors. Fin.SSSR
21 no.4:94 Ap '60.   (MIRA 13:4)

1. Kontroler-revizor Kontrol'no-revizionnogo upravleniya finansov
RSFSR po Chitinskoy oblasti.
              (Chita Province--Auditing)

ERLIKH, V.D., inzh.; CHELNOKOV, M.P., inzh.

Mordernization of C-12 mixing machines. Tekst. prom. 21 no.1:19-20
Ja '60.   (MIRA 14:3)
(Textiles machinery)

ERLIKH, V.D., inzh.; CHELNOKOV, M.P., inzh.

Automatization of the control of blending machines. Tekst.prom.
48-49 Ag '60.   (MIRA 13:9)
         (Textile machinery)   (Automatic control)

ERLIKH, V.D., inzh.; CHELNOKOV, M.P., inzh.

Mechanization of the unloading of semifinished products from the hammer felting machine. Tekst.prom. 21 no.6:68 Je '61.

(MIRA 15:2)

(Textile machinery)
(Feltwork)

CHELNOKOV, N.
CHELNOKOV, N.

18078

USSR/RR Locomotives 4602.0401   May 1947

"Economical Work in Locomotive Economy," V. R. Chelnokov, Dir-Gen-leyt, Adm Service, 10 pp

"Zh-d Transport" No 5

Gives categories of expenditures for 1946 in percentages. Names railroad lines indulging in overexpenditures. Efficiency of labor per worker computed for States. Efficiency of gross weight. 1946 in ton-kilometers, number of in-1946, sons for decline in labor efficiency, operative locomotives maintained by 12 lines in 1946, and measures for accelerating speed. Names several depots which succeeded in economizing on locomotive, depots sustaining expenses, depots sustaining. Gives means of reducing expenses 18078

USSR/RR Locomotives 4602.0401 (Contd)   May 1947

losses in rubles, reasons for these losses, and examples of depots which profited in 1946 in rubles.

18078

8(6), 14(6, 10)

AUTHOR: Chelnokov, N. I., Tetel'baum, I. M., and Obrezkov, V. I.

TITLE: Calculating the Transient Motion in the Tailrace of a Hydroelectric Station by Means of Electric Simulation

ABSTRACT: A method for solving the problem of a transient motion in the tailrace of a hydroelectric station that has a diurnal regulation is described; the method employs mathematical simulation on the basis of an electrical analogy. The problem is solved by electric simulation of a set of Sen-Venan's differential equations. The network consists of capacitors, direct, reverse, and self-conductances, and active fourpoles (cathode followers).

                                                                Yu. M.S.

Card 1/1

16.6800

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, No. 11,
pp. 172-173, # 42883

AUTHORS: Tetel'baum, I. M., Chelnokov, N. I.

TITLE: Increasing the Accuracy in Solving Problems with an Analog
             Electronic Computer

PERIODICAL: Tr. Mosk. energ. in-ta, 1958, No. 27, pp. 259-266

TEXT: The authors suggest a method of compensating systematic errors
of linear computing elements of electronic analog computers. If, on the
analog computer a program is composed for the solution of a differential
equation of the second order having the form:

$$A_2 \frac{d^2 y}{dt^2} + a_1 f(y) \frac{dy}{dt} + A_0 y = 0 \ldots, \tag{1}$$

on account of the stray parameters of the computing elements additional
members are added, and the machine solves in fact a differential equation
of a higher order, which has the form:

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S/123/59/000/11/53/077

Increasing the accuracy in Solving Problems with an Analog Electronic Computer

$$a_2 n \frac{d^{2n}y}{dt^{2n}} + \ldots + a_3 \frac{d^3 y}{dt^3} + A_2 \frac{d^2 y}{dt^2} + a_1 f(y) \frac{dy}{dt} + A_o y = 0 \ldots, \qquad (2)$$

where the coefficient a_1 for $i = 3, 4 \ldots 2n$ is considerably lower than the basic coefficients A_2 and A_o. In those cases when the magnitude of the coefficient a_1 is comparable with the magnitudes of the coefficient a_1, the effect of stray parameters may considerably alter the solution obtained. In the case of a_1 0 ($i = 3, 4, \ldots 2n$), the solution of the equation (2) has the following form:

$$y = y_o \sin(\omega_o t + \varphi); \qquad _o = \sqrt{\frac{A_o}{A_2}} \ldots \qquad (3)$$

The method of showing and compensating systematic errors of the computing elements consists in the temporary setting of the coefficient $a_1 = 0$ in the machine program, composed for the solution of the equation (1), and working out the solution. A difference of the obtained solution from (3) proves the presence of systematic errors, which can be compensated by selecting experimentally some negative or positive damping coefficient a and some correction A

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S/123/59/000/11/53/077

Increasing the Accuracy in Solving Problems with an Analog Electronic Computer

for the magnitude A_o, the insertion of which leads to a solution in the form of (3). After the compensation of errors, the coefficient a_1 is inserted and the required solution of the given equation (1) is obtained. In this way the errors of linear computing elements only mainly integrating ones, can be compensated. In order to illustrate the application of the suggested method, the authors analyze the solution of a non-linear differential equation of the 2nd order on the MN-2 machine. There are 4 figures, 2 tables, and 4 references.

Sh. A. V.

Card 3/3

OBREZKOV, V.I., kand.tekhn.nauk, dotsent; TETEL'BAUM, I.M., kand. tekhn.
    nauk, dotsent; CHELNOKOV, N.I., starshiy prepodavatel'

    Using electric simulation for the calculation of unsteady motion in
    the tail water of hydroelectric power stations. Trudy MEI no.30:
    35-50 '58.   (MIRA 12:5)

    1.Moskovskiy ordena Lenina energeticheskiy institut, Kafedra
    avtomatiki, telemekhaniki i matematicheskikh mashin (for Tetel'baum,
    Chelnokov). 2.Moskovskiy ordena Lenina energeticheskiy institut,
    Kafedra gidroenergetiki (for Obrezkov).
        (Hydroelectric power stations—Electromechanical analoties)

OBREZKOV, V.I.; TETEL'BAUM, I.M.; CHERNOKOV, N.I.

Using a continuous action electronic computer for calcu-
lation of the unsteady motion in the tail water of a hydro-
electric power station. Nauch.dokl.vys.shkoly; energ. no.2:
103-114 '59.   (MIRA 13:1)
          (Hydroelectric power stations)

OBREZKOV, V.I., kand.tekhn.nauk; SERYSHEV, A.I., inzh.; CHELNOKOV, N.I., inzh.

Using continuous calculating machines for water-power calculations.
Gidr.stroi.31 no.2:40-42 F '61.   (MIRA 14:3)
   (Electronic calculating machines)(Hydraulics—Tables,calculations,etc.)

TETEL'BAUM, I.M.; CHELNOKOV, N.I.

    Solution of engineering problems using electronic analog
computers. Trudy MEI no.41:153-172 '62.   (MIRA 16:7)

       (Electronic analog computers)
       (Electromechanical analogies)

CHELNOKOV, N.I.

Use of a straight line method for integrating the equations
of a nonstationary slowly varying motion in open currents of
water using computers. Trudy MEI no.41:173-185 '62.

(MIRA 16:7)

(Fluid dynamics)

SHLYKOV, Fedor Mikhaylovich, starshiy prepodavatel'; SHEKHVITS, Eliya Isaakovich, kand. tekhn. nauk, dotsent; TETEL'BAUM, Il'ya Markovich, kand. tekhn. nauk, dotsent; CHELNOKOV, Nikolay Ivanovich, starshiy prepodavatel'; SHNEYDER, Yuliy Romanovich

Electrical simulation of the dynamics of the drive of a mechanism with reduced varying moment of inertia. Izv. vys. ucheb. zav.; elektromekh. 5 no.6:602-610 '62.   (MIRA 15:10)

1. Kafedra vychislitel'noy tekhniki Moskovskogo energeticheskogo instituta (for Shlykov, Tetel'baum). 2. Kafedra teorii mekhanis- mov i mashin Vsesoyusnogo zaochnogo mashinostroitel'nogo insti- tuta (for Shekhvits). 3. Nachal'nik vychislitel'nogo tsentra kafedry vychislitel'noy tekhniki Moskovskogo energeticheskogo instituta (for Chelnokov). 4. Vedushchiy inzhener vychislitel'- nogo tsentra kafedry vychislitel'noy tekhniki Moskovskogo energeticheskogo instituta (for Shneyder).

(Electric driving)
(Electromechanical analogies)

CHELNOKOV, N.I.; KRAVTSOV, I.Ye.; GOL'DEN, D.V.; CHERNYSHEV, A.V.

Solution of some problems using electromechanical differential analyzers. Trudy MEI no.41:187-200 '62.   (MIRA 16:7)

(Electronic differential analyzers)
(Counting devices)   (Automatic control)

KOVALEV, A.P.; IPPOLITOV, A.S.; TORGONENKO, Yu.M.; BKHADURI, D.; CHELNOKOV, N.I.;
    SHNEYDER, Yu.R.

Flame propagation in laminar and turbulent flows. Inzh.-fiz. zhur.
no.10:28-36 O '64.   (MIRA 17:11)

1. Energeticheskiy institut, Moskva.

CHELNOKOV, N. M.

232173

USSR/Metallurgy - Welding, Surfacing   Jun 52

"New Methods for Facing With Copper and Copper Alloys," N. M. Chelnokov, Engr

"Avtogen Delo" No 6, pp 15-17

Describes method of automatic welding developed at MVTU (Moscow Order of Labor Red Banner Higher Tech School imeni Bauman) for facing steel and cast iron with copper, tin, bronze, and brass. Method uses combined carbon-metal arc. Welding rod is fed through central channel in carbon electrode. In addn to heat of carbon arc, process

232173

utilizes also heat generated by elec arc stroke between welding rod and base metal. Ground chips may be used instead of rod. Briefly describes automatic welding installation.

232173

CHELNOKOV, N.M., inzhener.

New methods of depositing brass and copper alloys on steel.
[Trudy] MVTU no.37:145-153 '55.   (MLRA 9:6)
        (Brass plating) (Copper plating)

CHELNOKOV, N. M.

AID P - 5057

Subject   : USSR/Engineering-Welding

Card 1/2   Pub. 107-a - 6/9

Author   : Chelnokov, N. M., Eng.

Title   : Automatic welding of the LK80-3L brass with the 20-steel
               by using melting electrode.

Periodical : Svar. proizv., 5, 22-24, My 1956

Abstract   : The author describes the technique and results obtained
               on experimental automatic welding of 20-steel with
               LK80-3L brass rings. It was carried on at the Moscow
               Higher Technical School (MVTU) im. Bauman. The TS-17M
               automatic welder and the PDSh-50 semi-automatic welder
               (for finishing) were used with the AN-20 standard flux.
               Tests have shown the feasibility of automatic welding
               of steel and brass, and since October 1955 this process
               has been used at the plant im. Kirov of the Ministry of
               the Shipbuilding Industry (Leningrad). One table, 1
               drawing, 2 graphs and 1 photo.

AID P - 5057

Svar. proizv., 5, 22-24, My 1956

Card 2/2   Pub. 107-a - 6/9

Institution :   As above.

Submitted   : No date

CHELNOKOV, N. M. (Engineer)

"Strength of Copper and Its Alloys in Welding," p. 214
in book Reports of the Interuniversity Conference on Welding,
1956. Moscow, Mashgiz, 1958, 266pp.

C HELNOKOV, N.M.

AUTHOR: Chelnokov, N.M., Engineer   135-10-6/19

TITLE: Investigation of the Tendency of Copper and Its Alloys to
            form Hot Cracks During Welding (Issledovaniye sklon-
            nosti medi i yeye splavov k obrazovaniyu goryachikh treshchin
            pri svarke)

PERIODICAL: Svarochnoye Proizvodstvo, 1957, No 10, pp 18-22 (USSR)

ABSTRACT: The article gives in detail the technology of an experimental
            investigation which had the objective to find the causes of hot
            cracks, and the results of this investigation. The old form of
            specimens (Figure 2) was the same as is used for testing steel,
            whereas the heat conductivity and the expansion coefficient of
            steel and copper are different. The new type of specimen
            (Figure 1) eliminates this fault. The thermal deformation
            measured by the new specimen was 16-17 times less that measured
            by the old specimen. Deformation processes are analyzed. The
            composition of the molten flux "AH -20", of the ceramic fluxes
            "ФК -14" and "ФК -30" used in the experiments are given (chart
            on p 20). The investigation covers the influence of the
            following elements: oxygen (which was added in the form of
            scale on copper wire), nickel (in the form of galvanic coat-
Card 1/2   ing, crushed chips added to flux, electrolytic powder added to

135-10-6/19

Investigation of the Tendency of Copper and Its Alloys to form Hot Cracks
During Welding

flux, mechanical mixture of crushed chips and ceramic flux -
all with a large difference of effects). The metallurgical
processes taking place in the welding puddle are analysed.
The effect of manganese, chromium, iron, tantalum, silver,
bismuth, and copper protoxide is evaluated. The following con-
clusions are made: 1) Chromium, manganese, iron, nickel and
tantalum strengthen weld metal in the process of welding;
2) silver - within the investigated contents - has no such
effect; 3) copper protoxide, lead and bismuth cause an abrupt
decrease of weld metal. There are 2 sketches, 10 diagrams,
1 chart.

ASSOCIATION: MVTU imeni Bauman.

AVAILABLE: Library of Congress

Card 2/2

137-58-6-12440

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 179 (USSR)

AUTHOR: Chelnokov, N.M.

TITLE: Automatic Welding of LK 80-3L Brass to Steel 20 (Avtomaticheskaya svarka latuni LK 80-3L so stal'yu 20)

PERIODICAL: V sb. Prochnost' i avtomatizatsiya svarki. (MVTU, 71), Moscow, Mashgiz, 1957, pp 129-137

ABSTRACT: Investigations were performed in order to determine the practicability of welding (W) of brass to steel by employing the existing standard welding heads with controlled arc potential, as well as heads capable of feeding electrode wire at a constant rate. Various types of welding rods and standard fluxes were tested, and optimal values of welding current, arc voltages, and rates of W were established. A technology was developed for automatic W of LK 80-3L brass to St-20 steel with the aid of fusible electrodes. In order to avoid hot cracking, it is recommended that the W process be carried out with 2-mm diam Cu wire of M1 and M2 grades and that the following conditions be observed: magnitude of current 240-260 amp; arc
Card 1/2   voltage 30-32 v; rate of W 38-40 m/hr; type of flux: pumiceous

137-58-6-12440

Automatic Welding of LK 80-3L Brass to Steel 20

AN-20 flux of the following composition; 30-33% CaF_2, 11% MgO, 20% SiO_2, 25-30% Al_2O_3, and 2.9% K_2O; type of current: D-C with reversed polarity. W joints obtained in this manner exhibit good strength characteristics. The σ_b of the metal in the joint exceeds the σ_b of cast LK80-3L brass by 5-10 kg/mm^2.

V.K.

1. Arc welding--Electrodes   2. Electrodes--Test results   3. Brass--Welding
4. Steel--Welding   5. Welding fluxes

Card 2/2

AUTHOR: Chelnokov, N.M.

TITLE: Development of Equipment and Process Procedures for the
Welding of Copper and its Alloys and Facing of Steel Therewith
(Razrabotka apparatury i tekhnologicheskikh protsessov dlya
svarki medi i yeye splavov i naplavka ikh na stal')

ABSTRACT: Bibliographic entry on the author's dissertation for the de-
gree of Candidate of Technical Sciences, presented to the
Mosk. vyssh. tekhn. uch-shche im. N.E. Baumana (Moscow
Technical College im. N.E. Bauman), Moscow, 1958

ASSOCIATION: Mosk. vyssh. tekhn. uch-shche im. N.E. Baumana (Moscow
Technical College im. N.E. Bauman.), Moscow

1. Copper--Welding   2. Copper alloys--Welding   3. Welding--Equipment

Card 1/1

CHELNOKOV, N.M., kand.tekhn.nauk

Automatic machines for the welding of ignition coils. Svar.
proizv. no.3:42-43 Mr '63.
(MIRA 16:3)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana.
(Electric welding—Equipment and supplies)
(Electric coils—Welding)

CHELNOKOV, N.V., general-mayor aviatsii zapasa, dvazhdy Geroy Sovetskogo Soyuza

To combat friends and comrades. Mor. sbor. 47 no.7:27-28 Jl '64.
(MIRA 18:7)

YEVTYANOV, S.I.; CHELNOKOV, O.A.

Transistor oscillator. Nauch.dokl.vys.shkoly; radiotekh. i
elektron.no.1:102-118 ' 58.
(MIRA 12:1)

1. Kafedra radioperedayushchikh ustroystv Moskovskogo energetiche-
skogo instituta.
(Oscillators, Transistor)

9 (2)

SOV/162-59-1-18/27

AUTHORS: Yevtyanov, S.I., Chelnokov, O.A.

TITLE: The Condition of Self-Excitation of a Transistorized
              Self-Oscillator

PERIODICAL: Nauchnyye doklady vysshey shkoly, Radiotekhnika i
              elektronika, 1959, Nr 1, pp 149-162

ABSTRACT: The authors establish the conditions of self-excita-
              tion of a single-circuit self-oscillator, assembled
              according to a generalized Colpitts circuit with one
              junction transistor, at frequencies, where inertia
              properties have an influence. A generalized Colpitts
              oscillator circuit is shown in Fig 1. The S-parameter
              system was used for investigating the common-emitter
              circuit. The authors present the frequency relations
              of S-parameters from a T-shaped equivalent circuit for
              a junction transistor shown in Fig 2. They investiga-
              te the frequency characteristics of the transconduct-
              ance S, the input admittance S_0 and the output admit-
              tance S'. The results of the calculations are compa-

Card 1/2

The Condition of Self-Excitation of a Transistorized Self-Oscilla-
tor   SOV/162-59-1-18/27

red to experimental results obtained with a P3B tran-
sistor. The inertia properties of a junction transis-
tor may be neglected only at frequencies below $0.02\,\omega_\alpha$
It was established experimentally that self-oscillati-
ons may be obtained in the frequency range up to ω_α,
using a transistorized Colpitts oscillator. However,
at frequencies higher than $0.2\,\omega_\alpha$, the self-oscillati-
ons are produced only at great values of $x_\sigma S_0$, ie. due
to optimum phasing. There are 3 circuit diagrams, 6
graphs, 9 references, 7 of which are Russian and 2
American.

ASSOCIATION: Kafedra radioperedayushchikh ustroystv Moskovskogo
energeticheskogo instituta   (Chair   of Radio Trans-
mitters of the Moscow Power Engineering Institute)

SUBMITTED: October 15, 1958
Card 2/2

S/194/61/000/012/092/097
D271/D301

AUTHOR: Chelnokov, O. A, and Podolyako, I. A.

TITLE: Frequency stability of semiconductor oscillators

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika,
             no. 12, 1961, 4-5, abstract 12K22 (Tr. Mosk. energ.
             in-ta, 1961, no. 34, 100-119)

TEXT: A transistor oscillator is theoretically analyzed and a cal-
culation is given of its parameters ensuring a minimum (zero) va-
riation of its frequency when several transistor parameters are
given, viz. output and input capacities, and the phase of the col-
lector current slope. Analytical results are compared with the ex-
perimental results of investigation of an oscillator operating at
20 Mc/s and using a Л-403(P-403) transistor. Experimental results
confirm that it is possible to improve the frequency stability by
a rational choice of the oscillator circuit, of the elements en-
suring proper phase relations and of the transformation coefficient.
/ Abstractor's note: Complete translation. 7

Card 1/1

CHELNOKOV, Petr Aleksandrovich;MORDVINOVA, N.P., inzh., ved. red.;
     SMIRNOV, P.V., inzh., red.; SOROKINA, T.M., tekhn. red.

[Pulse programming device for the automatic control of
foundry processes]Impul'snyi komandoapparat dlia avtomatiza-
tsii tekhnologicheskikh protsessov liteinogo proizvodstva.
Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii,1958.
10 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi
opyt. Tema 42. No.P-58-85/10)
   (Founding) (Programming (Electronic computers))
                                              (MIRA 16:3)

VASIL'YEV, N. V., CHELNOKOV, S. S.(Eng.)

Pipelines

Construction of pipelines and sewers by pressure tunneling. Gor. khoz. Mosk. 26 No. 8, 1952.

9. **Monthly List of Russian Accessions**, Library of Congress, December 1953. Unclassified.

CHELNOKOV, S.S.

TIKHOMIROV, S.S., inzhener; CHELNOKOV, S.S., inzhener; VASIL'YEV, N.V., kandidat tekhnicheskikh nauk.

Shielded methods of building underground municipal structures. Gor.khoz. Mosk. 27 no.5:17-26 My '53.
(MLRA 6:6)
(Moscow—Municipal engineering)

CHELNOKOV, S.S., inzhener.

Modern methods of preparing frozen ground for excavation.
Gor.khoz.Mosk. 27 no.12:19-23 D '53.   (MIRA 6:12)
                              (Frozen ground) (Excavation)

PLOTNIKOV, N.P.; CHELNOKOV, S.S., inzhener.

Introducing new techniques into the economy of the Moscow Soviet
during the sixth five-year plan. Gor. khoz. Mosk. 30 no.8:8-12
Ag '56.
(MLRA 9:10)

1. Nachal'nik Tekhnicheskogo upravleniya Ispolkoma Mossoveta
(for Plotnikov).
(Moscow--Building)

CHELNOKOV, S.S., inzh.

Scientific and experimental work conducted to meet municipal needs.
Gor. khoz. Mosk. 34 no.11:13-15 N '60.   (MIRA 13:11)

1. Nachal'nik otdela Tekhnicheskogo upravleniya Mosgorispolkoma.
          (Moscow--Municipal services)

CHELNOKOV, S:S:

New truck for transporting flour. Gor. khoz. Mosk. 35 no.1:39 Ja
'61.
(MIRA 14:2)

1. Nachal'nik otdela mekhanizatsii Tekhnicheskogo upravleniya Mos-
gorispolkoma.
(Flour--Transportation)

CHELNOKOV, V.; KOLPASHNIKOVA, R.

Economic work performed by workers' representatives. Den. i kred. 19 no.11:35-40 N '61.

(Industrial management)

(MIRA 14:12)

BRODSKIY, V. CHELNOKOV, V.

Organization of the work of the central dispatcher service in Riga.
Avt.transp. 42 no.1:13-15   Ja   '64.   (MIRA 17:2)

FD 372

CHELNOKOV, V. A.

USSR/Physics - Oscillations in Metals

Card 1/1

Author   : Tsobkallo, S. O. and Chelnokov, V. A.

Title   : New method for determining true damping of oscillations in metals

Periodical : Zhur. tekh. fiz. 24, 499-510, Mar 1954

Abstract   : Method, suggested by authors for measuring damping factor, is based
               on counting impulses with aid of binary conversion device. Use of
               small specimens is discussed. Authors develop theoretical method
               for determining true decrement of oscillations in bending and give
               examples of its application. Nine references, 7 USSR, one since
               1934, one since 1938, others 1948-1953. Illustrations, graphs.

Institution :

Submitted   : October 14, 1953

DEMINA, A.A.; CHELNOKOV, V.P.

Photogrammetric condensation of altitudes by means of an undistorted
model. Geod. i kart. no.4:9-15 Je '56.   (MIRA 9:10)
            (Photogrammetry)

CHELNOKOV, V.P.

Computing the height of forests in orientation by stereometer.
Geod. i kart. no.4:73-75 Ap '57.   (MLRA 10:8)

1. Zamestitel' nachal'nika sterotsekha Severno-Zapadnogo aero-
geodezicheskogo predpriyatiya.
                    (Topographical surveying)

CheLNoKov, V. P.

6-1-14/16

AUTHOR: Chelnokov, V. P.

TITLE: Stereoscopic Drawing of the Relief by Drawing Contour Lines in the Distance of 1 Meter (Stereoskopicheskaya risovka rel'yefa s provedeniyem gorizontaley cherez 1 m)

PERIODICAL: Geodeziya i Kartografiya, 1958, Nr 1, pp. 73 - 74 (USSR)

ABSTRACT: At the beginning of 1957, the stereotopographic division of the aerogeodetic enterprise North West carried out both a stereodrawing and a composition of an embossed map on the scale 1 : 5000 and contour lines with a 1 m distance according to the contract with the laboratory for aeromethods AN USSR. The letter of a reader in which the carrying out of the afore-mentioned map is described, is given here. According to the control achieved, the mean error with the position of the contour line amounts to 0,32 m. There is 1 table.

ASSOCIATION: Stereoscopic Division of the Aerogeodetic Enterprise North-
Card 1/2   -West (Stereotsekh Severo-Zapadnogo AGP = Aerogeodezicheskoye

6-1-14/16

Stereoscopic Drawing of the Relief by Drawing Contour Lines in the Distance of 1 Meter

          predpriyatiye)

AVAILABLE: Library of Congress

Card 2/2

CHELNOKOV, V. S,

CHELNOKOV, Vasiliy Stepanovich, kand.ekonom.nauk; VARTANYAN, M.Kh., red.;
GAMZAIEVA, M., tekhn.red.

[Transition from capitalism to socialism. The victory of socialism
in the U.S.S.R.; lectures in the course on political economy]
Perekhodnyi period ot kapitalizma k sotsializmu. Pobeda sotsializma
v SSSR; lektsii po kursu politicheskoi ekonomii. Moskva, Gos.izd-vo
"Sovetskaia nauka," 1957. 46 p.   (MIRA 11:1)
              (Russia--Economic policy)

AUTHORS: Ryvkin, S. M., Strokan, N. B.,   57-28-6-5/34
             Tuchkevich, V. M., Chelnokov, V. Ye.

TITLE: Silicon Photodiodes (Kremniyevyye fotodiody)

ABSTRACT: In the present report the results obtained by investigating
             the possibility of utilizing silicon p-n photoelements
             for the purpose of transforming light signals into electric
             signals in the photodiode regime are described. It could be
             taken for granted from the very beginning that silicon
             photodiodes, which are of somewhat lower integral
             sensitivity, must offer some advantages compared to
             germanium photodiodes (reference 3), viz. a lower "dark
             current" and a lower degree of inertia. Further, the
             results obtained by investigating the basic properties
             of the silicon photodiodes LFTI produced in the laboratory
             are described. The sensitivity of samples to the light
             of the incandescent lamp with a color temperature of the
Card 1/3   filament of $\sim 2850^\circ$C fluctated between 5 and 7 mm/lumen

57-28-6-5/34

Silicon Photodiodes

(figure 1). The photodiodes have the same sensitivity along the entire illuminated surface (figure 2). The dependence of sensitivity on light intensity is linear (figure 3). The volt-ampère characteristics of the photodiodes are shown (figures 4a and 4b). Estimation of the time needed for "flying through" t_o resulted in the value

$$t_o \simeq \frac{w^2}{2D} \approx 3 \cdot 10^{-8} \text{ sec.}$$ Finally, the authors endeavored to estimate the life of the minority carriers τ in the photodiodes investigated by studying the kinetics of the photoelectromotive valve force ϕ. When measuring τ, $\tau \sim 1 \cdot 10^{-6}$ sec was obtained as a result. This amount must be considered to be merely the upper limit of the τ value as it corresponds to the duration of the front amplification of the light impulses. For $\phi \ll \frac{kT}{e}$ the relaxation curve is an exponent with a time constant $R_e C$, in which case $\frac{1}{R_e} = \frac{1}{R_o} + \frac{1}{R}$. The value of the capacity, which was determined

Card 2/3

Silicon Photodiodes   57-28-6-5/34

from R_eC, was found to be equal to approximately
2000 pf. This capacity value is greater than the
one mentioned in the table, because it corresponds
approximately to the zero-displacement on the
n-p-transition. There are 5 figures, 1 table, and
7 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut, AN SSSR
                (Leningrad Physical-Chemical Institute, AS USSR)

SUBMITTED: January 28, 1958

                1. Silicon—Photoconductivity   2. Silicon—Photosensitivity
                3. Silicon—Electrical properties   4. Silicon—Electron
                transitions   5. Mathematics

                TITLE: Photodiodes

Card 3/3

24(6)

SOV/57-28-10-3/40

AUTHORS: Tuchkevich, V. M., Chelnokov, V. Ye.

TITLE: **Volt-Ampere Characteristics** Diffusion n-p Junctions in
Silicon (O vol'tampernoy kharakteristike diffuzionnykh
kremniyevykh n-p- perekhodov)

ABSTRACT: This is an investigation of the current-voltage characteristics
and of the temperature dependence of the photovoltage and of the
photocurrent of diffusion silicon photodiodes. Similar investi-
gations were also carried out with alloyed germanium photo-
diodes (which are covered by the paper cited by reference 4) by
the author and coworkers. This paper starts out from the classic
formula by Shockley (Shokli) (Ref 5). If an actual semiconductor
diode is considered, the series resistance R_s of the thickness

of the semiconductor material and of the contacts and the re-
sistance shunting the junction in an inverse direction R_N must

be taken into account. If this is done formula (1) is trans-
formed into formula (2). The validity of this formula (2) was
checked with diffusion silicon photocells in a rectifier and in

Card 1/4

Volt-Ampere Characteristics   SOV/57-28-10-5/40
Diffusion n-p Junctions in Silicon

a diode mode of operation. The photocurrent I_{ph} (that is the short-circuit current in an ideal photocell with $R_s = 0$) was measured with a photodiode mode of operation. The voltage of the open circuit V_o was measured by means of a compensation method.

The function $\lg I_{ph} = f(V_o)$ was determined by measurements for a great number of photocells. The curves obtained for this function are composed of three linear sections. The photocurrent versus photovoltage function can be specified for the individual sections by formula (3):

$$I_{Ph} = I_o (e^{\frac{qV_o}{\beta kT}} - 1), \qquad (3)$$

where q denotes electronic charge, k the Botzmann constant, T the absolute temperature, and β a factor > 1. In each rectilinear section the values of I_o and β are different, β, which is computed from the gradient of the rectilinear sections, differing from unity. The transition from the first to the second section always takes place at a voltage of about 0,1 V, that

Card 2/4

SOV/57-23-10-3/40

Volt-Ampere Characteristics   of Diffusion n-p Junctions in Silicon

from the second to the third one at 0,4 ÷ 0,5 V, at room temperature. If the intensity of illumination is further increased the third section extends into a vertical straight. If the temperature is reduced, β increases in all three sections. No clearly defined saturation range was generally found to exist in the backward branch of the current-voltage curve obtained from diffusion electron-hole junctions in silicon. The backward resistance of such a sample is not constant and the curve is non-linear over its whole course. The resistance shunting the junction in an inverse direction decreases with the rise of the voltage applied in the reciprocal direction. The temperature dependence of the backward current measured at -2,5 V does not show an exponential course. The curves specifying the V_o versus

temperature function at different intensities of illumination are presented. If this intensity is increased, the photocurrent and V_o also increase, the whole curve shifting towards higher

values. The photocurrent versus temperature curve is given. From these curves may be seen that the photocurrent varies as the temperature, following a linear law with a temperature co-

Card 3/4

SOV/57-83-10-5/40

Volt-Ampere Characteristics of Diffusion n-p Junctions in Silicon

efficient of $1 \div 3 \cdot 10^{-5}$ A/degree, up to a certain temperature, above which the photocurrent decreases. This temperature is distinctive of different samples. The relation $\lg I_{ph} = f(V_o)$ was also investigated on alloyed junction-type germanium photodiodes, which were prepared in the FTI. The results are described in the paper cited by reference 4. V. G. Stronin, Graduate Student (Leningrad Polytechnical Institute imeni M. I. Kalinin), assisted with the measurements. There are 10 figures, 4 tables, and 13 references, 7 of which are Soviet.

SUBMITTED: July 10, 1958

Card 4/4

29758
S/194/61/000/006/033/077
D201/D302

26.2421

AUTHORS: Tuchkevich, V.M. and Chelnokov, V.Ye.

TITLE: Properties of silicon as required for its application in solar batteries

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1961, 25, abstract 6 G195 (V sb. Vopr. metallurgii i fiz. poluprovodnikov, M., AN SSSR, 1959, 8-12)

TEXT: The photo-emf of a photosensitive element increases with the increase of the lifetime of electrons and the decrease of specific resistance and whole mobility of intrinsic silicon. The magnitude of series resistance R_s, due to the contact resistance of the photo-element and the resistance of silicon, determines the shape of the load characteristic, of the photo-element current and consequently, the efficiency of the ideal converter. The load characteristic, of the photo-element current and consequently, the efficiency

Card 1/2

Properties of silicon...

29758
S/194/61/000/006/033/077
D201/D302

of the ideal converter. The load characteristic is given of a
photo-element having an area of 1.5 cm^2, the efficiency of which at
a solar radiation of 60 mW/cm^2 is about 8% and at 93 mW/cm^2 reaches
9%. It may be seen from the curves with contact resistances 13-1.8
ohm that lowering the latter makes it possible to obtain nearly
ideal load lines. In accordance with theoretical calculations it
is possible to obtain for monocrystallic S_i, with concentration of
impurities about 10^{19} cm^{-3}, an efficiency, with solar illumination,
of about 22-23%. $\boxed{\text{Abstracter's note: Complete translation}}$

Card 2/2

24.3300

S/058/62/000/004/056/160
A058/A101

AUTHORS: Tuchkevich, V. M., Chelnokov, V. Ye.

TITLE: Silicon phototubes

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 22, abstract 4G183 (V sb.
             "Fotoelektr. i optich. yavleniya v poluprovodnikakh". Kiev, AN USSR,
             1959, 339-344)

TEXT: Phototubes were prepared from Si with p-type conductivity and a
specific resistance of the order of several ohm/cm. P-n junctions were produced
as a result of diffusion from the gaseous phase of elements from the fifth
group of the periodic system. The authors give the characteristics of the
phototubes produced.

[Abstracter's note: Complete translation]

Card 1/1

CHELNOKOV, V. Ye.

PHASE I BOOK EXPLOITATION   SOV/5770

Yakovchuk, Nikolay Stepanovich, Valentin Yevgen'yevich Chelnokov,
    and Mikhail Petrovich Geyfman

Ploskostnyye tranzistory (Junction Transistors) Leningrad, Sudpromgiz,
    1961. 262 p. 15,700 copies printed.

Reviewer: Yu. K. Barsukov; Scientific Ed.: S. Ya. Shats; Ed.: Z. V.
    Vlasova; Tech. Ed.: R. K. Tsal.

PURPOSE: This book is intended for radio engineers and scientific
    personnel concerned with semiconductor application, and for
    students in this field.

COVERAGE: The authors present the general fundamentals of the physi-
    cal processes occurring in the p-n junction and in junction tran-
    sistors. Basic calculations of various transistorized circuits
    are given in detail. Certain shipboard transistorized instru-
    ments are also described. Source materials include original arti-
    cles and monographs, as well as works of the authors themselves.

Card 1/7

Junction Transistors   SOV/5770

Chs. I and II were written by V. Ye. Chelnokov, Chs. III to IX and the appendix by N. S. Yakovchuk, and Ch. X by M. P. Geyfman. The authors thank Yu. K. Barsukov and V. I. Stafeyev (Candidates of Physics and Mathematics), S. Ya. Shats, Candidate of Technical Sciences, V. M. Tuchkevich, Professor, L. Chizhov, and A. K. Yakovchuk for their help. There are 57 references: 28 Soviet, 28 English, and 1 German.

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CHELNOKOV, V. Ye.

Method for measuring the series resistance of large-surface
diffusion-type silicon photocells. Radiotekh. i elektron. 8 no.5:
883-885 My '63.   (MIRA 16:5)
           (Photoelectric cells)

S/105/63/000/003/004/004
A055/A126

AUTHOR: Chelnokov, V.Ye.

TITLE: Method of measuring the temperature of the p-n junction of silicon power rectifiers

PERIODICAL: Elektrichestvo, no. 3, 1963, 89 - 90

TEXT: A method of measuring the p-n junction temperature with the aid of a forward current pulse and a compensating pulse was described by Spitzer and Steinhäuser (Solid state Phys. Electron. and Telecommuns, v. 2, London - New York, 1960). To measure the temperature of the silicon rectifier p-n junction, the author of the present article uses a method based on the recording of the variation of a pulse of a small forward current applied to the rectifier during the reverse half-period. A cosinusoidal voltage pulse was applied (Fig. 1) to the tested rectifier D, in the forward direction, through a system consisting of two silicon rectifiers SR with a very small reverse current and a germanium rectifier GR with a small forward voltage drop, that permitted to filter out completely the reverse half-wave of the current. The reverse voltage across the

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Method of measuring the temperature of S/105/63/000/003/004/004
A055/A126

tested diode did not exceed 1.5 mv. The power transformer permitted obtaining an average rectified current of up to 1,500 amp, which was measured with the aid of r_{shunt}. The forward current rectangular pulses were supplied to D by a generator ГИС -2 (GIS-2). When the temperature varied, the rectangular pulse voltage was kept constant with the aid of GIS-2, and this was recorded by one of the oscillographs ЭНО-1 (ENO-1). The pulse current flowing through D and r varied with the temperature of the p-n junction of D, and this variation was recorded by the second oscillograph ENO-1. The tested rectifier had been previously calibrated in a thermostat between room temperature and +160°C. The error in the calibration and in the measurement did not exceed ±3°C. The measured p-n junction temperature was checked with the aid of a bead thermocouple, and the results yielded by the two methods of measurement were found to be in a sufficiently good agreement. Three typical curves showing the dependence of the silicon rectifier p-n junction temperature on the average value of the rectified current (for different cooling systems) are reproduced and discussed. There are 2 figures.

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Method of measuring the temperature of ....
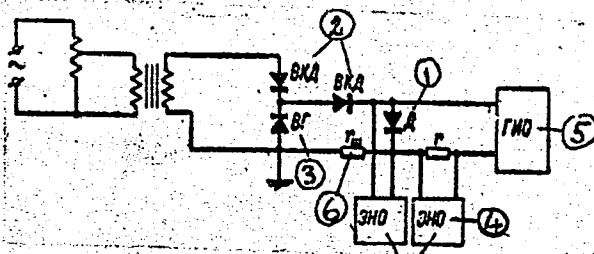
S/105/63/000/003/004/004
A055/A126

Figure 1: 1 - D;   2 - SR;   3 - GR;
4 - ENO;   5 - GIS;   6 - r_{shunt}.

ASSOCIATION: Fiziko-tekhnicheskiy institut (Physicotechnical Institute)

SUBMITTED: October 8, 1962

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L 13052-63
AT/IJP(C)   EWT(1)/EWG(k)/BDS/EEC(b)-2   AFFTC/ASD/ESD-3   Pz-4
ACCESSION NR: AT3002999

S/2927/62/000/000/0152/0176

AUTHOR: Kapitonov, A. I.; Tuchkevich, V. M.; Chelnokov, V. Ye.

TITLE: Investigation of the current-voltage characteristics of diffusion electron-
hole junctions in silicon [Report the All-Union Conference on Semiconductor Devices,
held in Tashkent from 2 to 7 Ocber 1961]

SOURCE: Elektronno-dy*rochny*ye of perekhody* v poluprovodnikakh. Tashkent,
Izd-vo AN UzSSR, 1962, 152-176

TOPIC TAGS: semiconductor, silicon p-n junction, diffusion silicon p-n junction

ABSTRACT: An extensive experimental investigation and comparisions of its results
with existing theories are reported in the article. Current-voltage characteristics
of silicon "sun batteries" studied by the authors in 1957 did not agree with the
Shockley's "classical theory" (Bell Syst. Techn. J., 28, July, 1949); nor did it
agree with the improved theory by C. T. Sah, R. Noyce, and W. Shockley (Proc. IRE,
9, 1957). A new method for manufacturing power silicon rectifiers by diffusing B
into n-type Si was developed. The diffusion was conducted in air at high
temperature. Resulting diodes with a 3.14-sq-cm p-n junction area passed about
1,000 amp of average rectified current (water cooling) and had a breakdown voltage

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ACCESSION NR: AT3002999

of 2,000 v. In 1962, power h-v diffusion Si rectifiers for 200 amp (air-cooled) and 350 amp (water-cooled), at 700 v were set in lot production. The following experiments are described in the article. Effects of applied reverse voltage on the capacitiance and the width of spece-charge region were determined. The reverse branch of the current-voltage characteristic was studied and interpreted in terms of space-charge-generated and recombination currents; also effects of junction environment (coating, etching, dry air, aging, kerosine, oil) on the current-voltage characteristic were investigated. The forward branch of the current-voltage characteristic was studied in detail: at low and medium voltages and at high injection levels; also effects of temperature were invested. As the current-voltage relations in a Si p-n junction could not be fully explained by any existing theory, further experiments involved testing a diode, remodeling it into a photocell, testing the latter, remodeling it back into diode, and testing again. The "anomalous behavior" of the current-voltage characteristic is explained by the properties of its working surface. Finally, breakdown conditions of Si diodes were studied: effect of source Si resistivity on the breakdown voltage, effect of temperature on the current and voltage at which the current-voltage characteristic collapses, and effect of temperature on the reverse branch of the current-voltage characteristic. It was found that the termal breakdown which usually occurs in Si p-n junctions is due to a "weak spot" on the surface of the

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junction; photographs and an oscillogram of the breakdown are submitted.
"Investigation of capacitance of the diffusion p-n junctions in question were
carried out by A. A. Lebedev in our laboratory." Orig. art. has: 21 figures,
59 formulas, and 2 tables.

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences SSSR) Akademiya nauk
Uzbekskoy SSR (Academy of Sciences SSSR) Tashkentskiy gosudarstvenny*y
universitet (Tashkent State University)

SUBMITTED: 00   DATE ACQ: 15May63   ENCL: 00

SUB CODE: 00   NO REF SOV: 006   OTHER: 006

Card 3/3

CHELNOKOV, V.Ye.

Method for measuring the temperature of the electron-hole junction of silicon power rectifiers. Elektrichestvo no.3:89-90 Mr '63.

(MIRA 16:4)

1. Fiziko-tekhnicheskiy institut AN SSSR.
   (Electric current rectifiers)   (Silicon diodes)

GREKHOV, I.V.; LINIYCHUK, I.A.; TUCHKEVICH, V.M.; CHELNOKOV, V.Ye.;
SHUMAN, V.B.; YAKIVCHIK, N.I.

Some applications of regulated silicon power rectifiers.
Elektrichestvo no.2:76-77 F '65.   (MIRA 18:3)

L 30991-66   EWP(e)/EWT(m)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)   IJP(c)   JD

ACC NR: AP6002888

SOURCE CODE: UR/0286/65/000/024/0045/0045

INVENTOR: Grekhov, I. V.; Liniychuk, I. A.; Lebedeva, L. V.; Tuchkevich, V. M.; Chelnokov, V. Ye.; Shuman, V. B.; Yakivchik, N. I.

ORG: none

TITLE: Method of creating a source of diffusion of aluminum in silicon. Class 21, No. 176989 [announced by the Physical Engineering Institute im. A.F. Ioffe, AN SSSR (Fiziko-tekhnicheskiy institut AN SSSR)

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1965, 45

TOPIC TAGS: aluminum, diffusion, aluminum diffusion, junction, pnp junction, npnpn junction, pnn junction, junction forming

ABSTRACT: This Author Certificate introduces a method of forming an aluminum source for the diffusion of aluminum in silicon in an oxidizing atmosphere such as air. To simplify the technique and accelerate the diffusion, aluminum in the form of $Al(NO_3)_3$ solution or of a mixture of aluminum-oxide powder with powder oxides of metals such as tungsten, titanium, or tantalum is deposited by any well-known method on the surface of silicon plates. In a variant of the above method, in order to obtain structures of the types p-n-p or n-p-n-p-n, the surface of silicon plate is first coated with a boron or phosphorus compound and subjected to heat treatment. In a further variant of the first and second methods, in order to form semiconducting structures of such

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UDC: 539.121.72.002.2: 621.382

L 30991-66

ACC NR: AP6002888

types as p-n-n+, one of the sides of the silicon plate is coated with an alcoholic solution of aluminum, boron, and nickel compounds, and the other side is coated with a solution of orthophosphoric acid in alcohol, followed by a heat treatment.   [ND]

SUB CODE: 20,09 SUBM DATE: 05Mar64/ ATD PRESS: 4189.

Card 2/2 LC

ACC NR: AP6014695   SOURCE CODE: UR/0105/66/000/005/0058/0061

AUTHOR: Dumanevich, A. N.; Yevseyev, Yu. A.; Tuchkevich, V. M.; Chelnokov, V. Ye.;
Yakivchik, N. I.

ORG: none

TITLE: VKDUS power silicon diffusion-type thyristors

SOURCE: Elektrichestvo, no. 5, 1966, 58-61

TOPIC TAGS: thyristor, power thyristor, semiconductor device/VKDUS thyristor

ABSTRACT: Some test results and nominal characteristics of Soviet-made VKDUS silicon
diffusion-type power thyristors, developed in 1964, are reported. The thyristor (see
figure) has a 5-layer n-p-n-p-n structure with
outermost junctions shunted by metal contacts.
The junctions are prepared by successive
diffusion of B, Al, P in a single-crystal
(25-mm diameter, 0.35 mm thick) Si plate
having a resistivity of 20—40 ohm·cm.
Physical processes transpiring in the
5-layer structure are explained. Nominal
peak voltages of VKDUS thyristors are
50—600 v. Nominal currents are 25—150 amp,
depending on the type of cooling
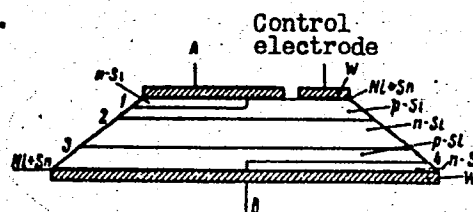
Five-layer thyristor

Card 1/2   UDC: 621.382.233

L 28897-66

ACC NR: AP6014695

(natural, radiator, forced-draft, water). Forward voltage drop, 1.25--0.9 v. Permissible overloads: 25% nominal current for 30 sec and 110% for 1 sec. Turn-on time, 10 μsec; recovery time, 25 μ sec or less. Operating frequency, up to 500 cps. Ambient temperature -40 +110C; cooling-watertemperature, 5--70C. Ambient humidity, not over 98%; atmospheric pressure, 600--1500 torr. The thyristors are vibration- and shock-proof; they are moisture- and corrosion-proof, but cannot operate in chemically aggressive media. Orig. art. has: 7 figures and 3 tables.   [03]

SUB CODE: 09 / SUBM DATE: 04Feb65 / ORIG REF: 004 / ATD PRESS: 5005

Card 2/2   CC